

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1 - 13. (Canceled).

- 1 14. (Original): A method for transmitting an optical signal from a sending
2 station to a receiving station, wherein a plurality of one or more relay stations are disposed
3 between the sending station and the receiving station, the method comprising:
4 receiving a transmitted signal at one of the relay stations as a received signal;
5 separating the received signal into a plurality of bands;
6 adjusting each band to produce a plurality of adjusted bands, including at least
7 one of amplifying optical signals comprising each band in accordance with predetermined optical
8 intensity parameters and adjusting a gain tilt of each band in accordance with predetermined gain
9 tilt parameters;
10 combining the adjusted bands to produce a transmission signal;
11 transmitting the transmission signal to a second relay station or to the receiving
12 station; and
13 repeating the above steps at one or more of the relay stations.
1 15. (Original): The method of claim 14 wherein the optical intensity
2 parameters and the gain tilt parameters are determined based on transmission characteristics of
3 all spans of optical fiber disposed between the sending station, the relay stations, and the
4 receiving station.
1 16. (Original): The method of claim 14 wherein at one of the relay stations
2 the received signal is transmitted without adjusting.

1 17. (Original): A method for transmitting an optical signal from a sending
2 station to a receiving station, wherein one or more relay stations are disposed between the
3 sending station and the receiving station, the method comprising:

4 storing optical intensity parameters and gain tilt parameters in a memory store;
5 receiving a transmitted signal at one of the relay stations as a received signal;
6 separating the received signal into a plurality of bands;
7 adjusting each band to produce a plurality of adjusted bands, including at least
8 one of amplifying optical signals comprising each band in accordance with the optical intensity
9 parameters and adjusting a gain tilt of each band in accordance with the gain tilt parameters;
10 combining the adjusted bands to produce a transmission signal; and
11 transmitting the transmission signal to a second relay station or to the receiving
12 station,

13 the gain tilt parameters being determined based on transmission characteristics of
14 all spans of optical fiber disposed between the stations,

15 the optical intensity parameters being determined based on the transmission
16 characteristics of all the spans of optical fibers including for each span determining stimulated
17 Raman scattering (SRS) induced variations, occurring at a receiving end of the span, of signal
18 intensities in an optical signal based on the signal intensities of the optical signal as they occur at
19 a transmitting end of the span.

1 18. (Original): The method of claim 17 wherein determining SRS-induced
2 variations further includes computing a sum of signal intensities as they occur at a transmitting
3 end of the span for all wavelength bands which comprise the optical signal.

1 19. (Original): Apparatus for transmitting optical signals comprising a
2 sending station, one or more relay stations, and a receiving station, each relay station comprising:
3 a demultiplexer having an input portion for inputting a received optical signal and
4 an output portion for outputting a plurality of bands;
5 a plurality of optical circuits, each having an input portion for inputting one of the
6 bands, a control input portion for receiving signals representative of optical intensity parameters
7 and gain tilt parameters, and an output portion for outputting an adjusted signal produced by
8 adjusting the band in accordance with the signals received at the control input portion; and
9 a multiplexer coupled to the output portions of the optical circuits, the multiplexer
10 having an output portion for outputting a transmission signal comprising the adjusted signals
11 from the optical circuits,
12 the gain tilt parameters being determined based on transmission characteristics of
13 all spans of optical fiber disposed between the stations,
14 the optical intensity parameters being determined based on the transmission
15 characteristics of all the spans of optical fibers including, for each span, stimulated Raman
16 scattering (SRS)-induced variations of signal intensity of an optical signal at a receiving end of
17 the span, the SRS induced variations being dependent on the signal intensity of the optical signal
18 occurring at a transmitting end of the span.

1 20. (Original): The apparatus of claim 19 further including a data store
2 configured to store the gain tilt parameters and the optical intensity parameters, the data store
3 operatively coupled to the optical circuits to provide the optical intensity parameters and the gain
4 tilt parameters.

1 21. (Original): Apparatus for transmitting an optical signal from a sending
2 station to a receiving station, wherein a plurality of one or more relay stations are disposed
3 between the sending station and the receiving station, the method comprising:

4 means receiving a transmitted signal at one of the relay stations as a received
5 signal;

6 means separating the received signal into a plurality of bands;

7 means for adjusting each band to produce a plurality of adjusted bands, including
8 at least one of amplifying optical signals comprising each band in accordance with one or more
9 optical intensity parameters and adjusting a gain tilt of each band in accordance with one or more
10 gain tilt parameters;

11 means for combining the adjusted bands to produce a transmission signal; and

12 means for transmitting the transmission signal to a second relay station or to the
13 receiving station,

14 the gain tilt parameters being based on transmission characteristics of all spans of
15 optical fiber disposed between the stations;

16 the optical intensity parameters being based on the transmission characteristics of
17 all the spans of optical fibers.

1 22. (Original): The apparatus of claim 21 wherein the optical intensity
2 parameters are further based on, for each span, determining stimulated Raman scattering (SRS)
3 induced variations of signal intensity of an optical signal at a receiving end of the span, the SRS
4 induced variations being dependent on the signal intensity of the optical signal at a transmitting
5 end of the span.

1 23. (New): The method of claim 14 further comprising compensating a level
2 variance between the adjusted bands with an optical filter that is wavelength dependent with
3 regard to light transmission characteristics.

1 24. (New): The method of claim 17 further comprising compensating a level
2 variance between the adjusted bands with an optical filter that is wavelength dependent with
3 regard to light transmission characteristics.

1 25. (New): The apparatus of claim 19 further comprising a gain tilt controller
2 for compensating a level variance between the adjusted bands, the gain tilt controller comprising
3 an optical filter that is wavelength dependent with regard to light transmission characteristics.

1 26. (New): The apparatus of claim 21 further comprising means for
2 compensating a level variance between the adjusted bands that is wavelength dependent with
3 regard to light transmission characteristics.